



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,576	04/09/2004	Heng-Chih Lin	TI-36613	1887
23494	7590	09/02/2005	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			WAMSLEY, PATRICK G	
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/821,576

Applicant(s)

LIN ET AL.

Examiner

Patrick G. Wamsley

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) 2,3 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,13,14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election of Species***

Claims 2, 3, and 15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the election requirement in the reply filed on 08/12/2005.

Applicant's election with traverse of claims 1, 4-10, 13-14, and 16-20 in the reply filed on 08/12/2005 is acknowledged. The traversal is on the grounds that Figures 3A and 3B describe a single invention. This is not found persuasive because applicant has not directly admitted that these species are obvious variants.

The requirement is still deemed proper and is therefore made FINAL.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the alleged low pass filter, hereafter LPF, function occurs.

In claim 10, applicant declares that the current steering DAC and combining arrangement collectively perform a LPF function. However, no element is present that is capable of filtering out high frequencies. No figure depicts any circuit, or other device part, that could perform such an operation.

In claim 13, applicant argues that the combining arrangement passes the signal to a modulator without an intervening LPF. If this is true, how does it perform a LPF function? Applicant does not disclose sufficient information to enable the skilled artisan to understand how this device filters out high frequency signal components.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-9, 14, and 16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,693,616 to Koyama et al, hereafter Koyama.

For independent claim 1, Koyama discloses an arrangement comprising plural storage devices [DFFs: Figure 1]; plural DACs; and a combining arrangement [not shown in Figure 1, but necessarily present in order to apply analog data from the signal lines to an output device].

Regarding the "reduced harmonic content" intended use limitation, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

For claims 4 and 18, Koyama's DFFs operated based upon N phases of the clock [CLK] signal [as described in columns 5 and 6].

For claim 5, Koyama's DFFs operated based upon equally spaced CLK phases [a timing diagram appears in Figure 2].

For claims 6 and 7, Koyama uses N DACs, having each DFF coupled to a DAC.

For claim 8, Koyama's DACs operate substantially continually, because interruptions in operation would disrupt assembly of the analog signal. Moreover, Koyama's DACs are not clocked, permitting continuous operation.

For claim 9, Koyama clearly has electrical connections joining DAC outputs because the analog signal must be compiled into a single signal for the applications listed in column 18.

For claims 14 and 16, Koyama discloses transmission systems, such as a telephone [Fig. 16A].

For claim 19, Koyama uses more than two phases.

For claim 20, Koyama provides a driver circuit [col. 19, line 52].

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,927,714 to Teterwak discloses a current steering DAC. U.S. Patent 6,833,801 to Ostrem et al provides switches for high-speed current steering DACs. U.S. Patent 6,768,438 to Schofield et al couples DFFs [101/301/302/303] to parallel DACs. U.S. Patent 6,741,195 to Cho provides a low glitch current steering DAC. U.S. Patent 6,720,898 to Ostrem shows an array for current steering DACs. U.S. Patent 6,693,616 to Koyama et al couples DFFs to DACs. U.S. Patent 6,392,573 to Volk couples DFFs [708/710] to a DAC. U.S. Patent 5,625,360 to Garrity et al uses DACs [42/43/44/45] in a DAC.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick G. Wamsley whose telephone number is (571) 272-1814. The official facsimile number is (571) 273-8300. An alternate facsimile number, (571) 273-1814, should only be used for unofficial documents.



**Patrick G. Wamsley**

**September 1, 2005**